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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAY DARRELL GILLESPIE, DANIEL DEYING KONG
and ROBERT C. ALEXANDER

Appeal 2009-013241
Application 09/921,323
U.S. Patent Publication 2003/0032357
Technology Center 1700

Decided: December 18, 2009

Before FRED E. McKELVEY, *Senior Administrative Patent Judge*,
and SALLY GARDNER LANE and MICHAEL P. TIERNEY,
Administrative Patent Judges.

McKELVEY, *Senior Administrative Patent Judge*.

DECISION ON APPEAL

1 A. Statement of the case

2 The appeal is being decided concurrently with Appeal 2009-007866.

3 The application on appeal is the "parent" of application 10/437,170,
4 filed 13 May 2003, involved in Appeal 2009-007866.

5 Fiberweb Simpsonville, Inc. [hereinafter Fiberweb], the real party in
6 interest, seeks review under 35 U.S.C. § 134(a) of a final rejection (mailed
7 18 September 2007).

8 The application on appeal was filed on 02 August 2001.

9 Claims 1, 4-10, 29, and 30 are on appeal.

10 The Examiner relies on four prior art references in support of a
11 rejection based on 35 U.S.C. § 103.

12 The appeal turns on what is described in one of the four references.

Mleziva	U.S. Patent 6,410,138	25 June 2002
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13

14 Mleziva is prior art under 35 U.S.C. § 102(e) based on application
15 08/940,886 filed 30 September 1997.

16 Fiberweb has made no attempt to antedate (37 C.F.R. § 1.131) the
17 Mleziva patent.

18 We have jurisdiction under 35 U.S.C. § 134(a).

19 B. Findings of fact

20 The following findings of fact are supported by a preponderance of
21 the evidence.

22 Additional findings as necessary may appear in the Discussion portion
23 of the opinion.

The invention

Figure 1 of the application on appeal is reproduced below.

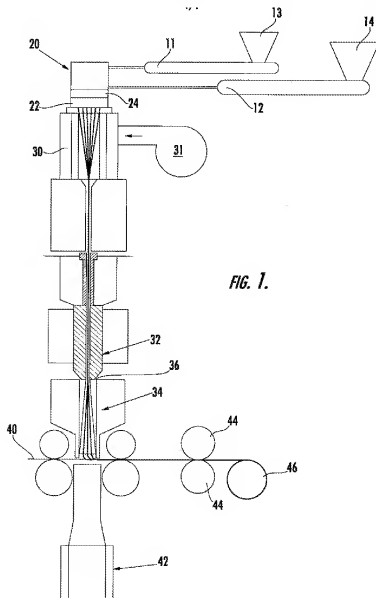


FIG. 1.

Fig. 1 depicts a system for producing spunbonded nonwoven fabric

Claim 1, reproduced from the Claims Appendix of the Corrected
Appeal Brief, reads [bracketed matter, drawing numbers, italics, and some
indentation added]:

1 A process for producing spunbond nonwoven fabric,
2 comprising the steps of:
3 [1] separately melting [in 11 and 12] two or more
4 polypropylene polymer components [supplied from 13 and 14] ,
5 at least one component including reclaimed
6 polypropylene recovered from previously spun polypropylene
7 fiber or webs comprised of previously spun polypropylene
8 fiber;
9 [2] separately directing the two or more molten polypropylene
10 polymer components through a distribution plate [24] configured so
11 that the separate molten polymer components combine at a
12 multiplicity of spinnerette orifices [22] to form bicomponent filaments
13 containing the two or more polymer components,
14 the polymer components being arranged in a sheath-core
15 cross-sectional configuration,
16 with the polymer component *containing reclaimed*
17 *polypropylene being present in the core,*
18 and the reclaimed polypropylene being in an amount up
19 to 100% by weight,
20 and with the total amount of *reclaimed poly propylene in*
21 *the filaments being 25% by weight or greater;*
22 [3] extruding the multicomponent filaments from the
23 spinnerette orifices to a quench chamber [30];

1 [4] directing quench air from a first independently controllable
2 blower [31] into the quench chamber [30] and into contact with the
3 filaments to cool and solidify the filaments;

4 [5] directing the filaments and the quench air into and through
5 a filament attenuator [32] and pneumatically attenuating and
6 stretching the filaments;

7 [6] directing the filaments from the attenuator into and through
8 a filament depositing unit [34];

9 [7] depositing the filaments from the depositing unit randomly
10 upon a moving continuous air-permeable belt [40] to form a
11 nonwoven web of substantially continuous filaments;

12 [8] applying suction from a second independently controllable
13 blower [42] beneath the air-permeable belt so as to draw air through
14 the depositing unit and through the air-permeable belt; and

15 [9] directing the web through a bonder and bonding the
16 filaments [from pressure exerted by a pair of heated calendar rolls 44]
17 to convert the web into a coherent nonwoven fabric [presumably
18 collected on roll 46].

19
20 We have not been able to find in the specification any element
21 identified by the number 46.

22 The appeal turns on the words shown in *italics*.

23 The Fiberweb invention relates to the manufacture of spunbonded
24 nonwoven fabrics, and more particularly to the use of recycled polymer in
25 the manufacture of spunbond nonwoven fabrics. Specification, page 1:2-4.

1 A major goal in the nonwovens industry is to reduce cost. At the
2 same time there is said to be a concern in society about degradation of the
3 natural environment. Disposal of solid waste is said to be a major
4 contribution to this growing environmental concern. Specification,
5 page 1:6-8.

6 During the production of polypropylene nonwoven fabrics, significant
7 waste polypropylene is said to be generated during startup of the process,
8 [1] from trimming left when the nonwoven web is slit to customer's
9 specification, and [2] from rolls that may have been slightly damaged or
10 otherwise out of specifications. The polypropylene waste, coming from
11 previously spun polypropylene fiber and webs comprised of previously spun
12 polypropylene fiber, can be safely sent to solid waste landfills. However
13 since previously spun polypropylene fiber is very clean polypropylene it can
14 also be remelted for recycling back through the spunbonding process.
15 Recycling is therefore said to meet two goals, [1] saving of the cost of
16 wasted polypropylene and [2] reduced solid waste to downgrade the natural
17 environment. Specification, page 1:9-17.

18 According to the Fiberweb invention, a spunbond nonwoven fabric is
19 made with multicomponent filaments having at least two different polymer
20 components occupying different areas within the filament cross section, and
21 wherein one of the polymer components comprises reclaimed polypropylene
22 recovered from previously spun polypropylene fiber or webs comprised of
23 previously spun polypropylene fiber. In a specific embodiment, the
24 filaments are sheath-core bicomponent filaments and the reclaimed

1 polypropylene is present in the core component. Specification,
2 page 2:15-21.

3 The polymer components for multicomponent filaments are selected
4 in proportions and to have melting points, crystallization properties,
5 electrical properties, viscosities, and miscibilities that will enable the
6 multicomponent filament to be melt-spun and will impart the desired
7 properties to the nonwoven fabric. At least one of the components is formed
8 from *reclaimed* polypropylene recovered from previously spun
9 polypropylene fiber or webs comprised of previously spun polypropylene
10 fiber. The *reclaimed* polypropylene will have been subjected to at least two
11 heat histories in which the polypropylene has been melted and resolidified:
12 once when the virgin polypropylene resin (in pellet or flake form as received
13 from the polymer manufacturer) was originally melted and extruded to form
14 the original filaments and webs, and at least once again when the reclaimed
15 polypropylene was remelted and formed into the filaments and webs of the
16 present invention. In many instances, the polypropylene will have
17 undergone an additional melting and resolidification when the waste
18 polypropylene, in the form of the filaments or webs which are being
19 reclaimed, is remelted and formed into pellets or flake suitable for
20 processing in the extruders of the spunbond equipment. As a result of the
21 prior heat histories, the *reclaimed* polypropylene is said to exhibit a melt
22 flow rate higher than that of virgin polypropylene, typically at least 5 melt
23 flow units greater. Specification, page 8:21 through page 9:6.

24 In one preferred embodiment, the multicomponent filaments are
25 sheath-core bicomponent filaments, and the component containing the

1 reclaimed polypropylene is present in the core of the sheath-core filament.
2 The component can contain up to 100 percent by weight of the reclaimed
3 polypropylene, thus making it possible to significantly increase the amount
4 of reclaimed polypropylene incorporated into the filament. The sheath can
5 contain 100 percent by weight virgin polypropylene resin, or blends of
6 virgin polypropylene resin with a smaller amount of the reclaimed
7 polypropylene than is present in the core. Because of the higher content of
8 reclaimed polypropylene, the core component is said to have a melt flow rate
9 higher than that of the sheath, typically at least 5 melt flow units greater than
10 the sheath. Specification, page 9:7-16.

11 According to Fiberweb (specification, page 9:17-20) (italics added):

12 Preferably, the core component of the bicomponent filament
13 will comprise from 25% to 75% of the filament by weight, and
14 more desirably from 40% to 60% by weight of the filament. In
15 such event, the *reclaimed polypropylene will comprise 25*
16 *percent or more of the total filament, by weight.*

17 Prosecution history and addition of the 25% weight limitation

18 Claim 1, as filed and published, did not call for the total amount of the
19 "reclaimed polypropylene in the filaments being 25% by weight or greater."

20 It appears that the 25% by weight limitation found its way into the
21 claims in an amendment filed 9 December 2003.

22 Claim 1, now having the 25% by weight limitation, was rejected as
23 being unpatentable under 35 U.S.C. § 103(a) over WO 99/16947.

24 Prosecution of claim 1 continued through a series of rejections and
25 amendments, ultimately resulting in the rejection before us.

In order to meet the 25% by weight limitation, the rejection now relies on Mleziva—which appears to have a disclosure similar to WO 99/16947, at least insofar as the amount of recycled polymer to include in the fibers.

Mleziva

Mleziva, like Fiberweb, describes the use of recycled polymer scraps, such as polyethylene, polypropylene and copolymers of ethylene and propylene, to make spunbond fibers. Col. 3:34-37.

The Mleziva and Fiberweb process steps are similar.

Mleziva reveals (col. 8:6:22) (*italics added*):

In an alternative embodiment of the present invention . . . reclaimed and recycled polymers are also added to the polymer component. As described above, it has been discovered that the crimp enhancement additive of the present invention also facilitates homogeneous mixing between polymers. Specifically, the butylene-propylene random copolymer has been found to facilitate mixing between polyethylene and a reclaim polymer that contains a mixture of polyethylene and polypropylene. *In this embodiment, the reclaim polymer can be added to the polymeric component in an amount up to about 20% by weight.* Preferably, the reclaim polymer is collected from scraps and trimmings of previously formed nonwoven webs. Being able to recycle such polymers not only decreases the amount of materials needed to make the nonwoven webs of the present invention, but also limits the amount of waste that is produced.

1 The Mleziva alternative embodiment is to be contrasted with other
2 Mleziva embodiments which do not include reclaimed polymer.

3 Examiner's rejection on appeal

4 The Examiner has rejected all the claims on appeal as being
5 unpatentable under 35 U.S.C. § 103(a) over (1) a patent to Hill, (2) a patent
6 to Geus, (3) Mleziva and (4) a Handbook of Fiber Chemistry.

7 To meet the recycled polypropylene 25% by weight limitation, the
8 Examiner relies on Mleziva.

9 The Examiner's acknowledges the difference between Mleziva and
10 claim 1: Fiberweb's 25% by weight or greater vis-à-vis Mleziva's described
11 up to about 20% by weight. Examiner's Answer, page 7.

12 The Examiner found that one skilled in the art would have understood
13 that "up to about 20% by weight" "could be 25% as recited in claim 1"
14 Examiner's Answer, page 7.

15 Based on what the Examiner perceived one skilled in the art would
16 have understood, the Examiner held that the Mleziva "up to about 20% by
17 weight" would have rendered obvious the "25% by weight or greater" called
18 for by claim 1.

19 C. Discussion

20 1. Resolution of rejection

21 Fiberweb argues that there are numerous differences between the prior
22 art and the claims.

23 We find it necessary only to address the greater than 25% by weight
24 limitation in claim 1. A similar limitation appears in all the process claims
25 on appeal.

1 All can agree that 20% is not "25% by weight or greater".

2 But, does "about 20%" read on "25% by weight or greater"?

3 Use of "about 20%" would lead one skilled in the art to believe that
4 Mleziva was not limiting the amount of reclaimed polymer to "20%". *In re*
5 *Harris*, 409 F.3d 1339, 1343 (Fed. Cir. 2005) (use of "about" in a claim
6 shows that the applicant does not intend to limit the claimed ranges to their
7 exact end-points). "About" generally means "approximately." *Merck & Co.,*
8 *Inc. v. Teva Pharms. USA*, 395 F.3d 1364, 1367 (Fed. Cir. 2005).

9 The following helpful analysis concerning "about" in *claims* appears
10 in *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1368 (Fed. Cir.
11 2008): The word about does not have a universal meaning in patent claims,
12 and its meaning depends on the technological facts of the particular case.
13 When about is used as part of a numeric range, the use of the word about
14 avoids a strict numerical boundary to the specified parameter. Its range must
15 be interpreted in its technologic and stylistic context. In determining how
16 far beyond the claimed range the term about extends *the claim*, we must
17 focus on the criticality of the numerical limitation to the invention.

18 While most of the cases focus on the meaning of "about" in a claim,
19 this case involves the meaning of "about" in a prior art reference.

20 The Examiner does not explain why "about 20%" "could be 25% as
21 recited in claim 1." No prior art is cited to support the "could be" finding.
22 Nor is this a case where the Mleziva range explicitly overlaps that of
23 Fiberweb. Here, the ranges are "about 20%" and "25%". On the record
24 before us, we are unable to find that the ranges overlap. Moreover, we agree

1 with Fiberweb that there is no apparent reason in the record why one skilled
2 in the art would use the "25%" called for by claim 1.

3 We have not overlooked the fact that Fiberweb's original claims
4 included use of "about 20%" by weight of recycled polypropylene.
5 However, it is manifest that to avoid the prior art, Fiberweb inserted the
6 "greater than 25% by weight" into the claims, thereby limiting its patent
7 coverage to a preferred embodiment. That prior art renders original claims
8 unpatentable does not mean amended claims are likewise *per se*
9 unpatentable over that same prior art.

10 On this record, we are unable to find that the prior art reaches
11 Fiberweb's preferred embodiment and for that reason why reverse the
12 Examiner's rejection of the claims on appeal.

13 Because we find that the "25% by weight" requirement of the claims
14 is not described in the prior art cited by the Examiner, we find it unnecessary
15 to consider other differences argued by Fiberweb in support of patentability.

16 2. Gessner

17 The Examiner in Appeal 2009-007866 cited and relied upon Gessner,
18 U.S. Patent 5,443,898 (22 Aug. 1995). Gessner was not relied upon in the
19 Examiner's Answer in this appeal (2009-013241). Accordingly, we have
20 not considered Gessner's teachings for purposes of this appeal.

1 D. Decision

2 Fiberweb has sustained its burden on appeal of showing that the
3 Examiner erred in rejecting the claims on appeal as being unpatentable under
4 § 103 over the prior art.

5 Upon consideration of the appeal, and for the reasons given herein,
6 it is

7 ORDERED that the decision of the Examiner rejecting
8 claims 1, 4-10, 29, and 30 over the prior art is *reversed*.

9 FURTHER ORDERED that nothing in this opinion should be
10 construed as precluding the Examiner from reopening prosecution and
11 rejecting claims based on Gessner and any other prior art.

12 FURTHER ORDERED that no time period for taking any
13 subsequent action in connection with this appeal may be extended under
14 37 C.F.R. § 1.136(a)(1)(iv) (2008).

REVERSED

KMF

cc (via First Class mail)

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